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PAPERS
IN
MECHANICS.

No. I.

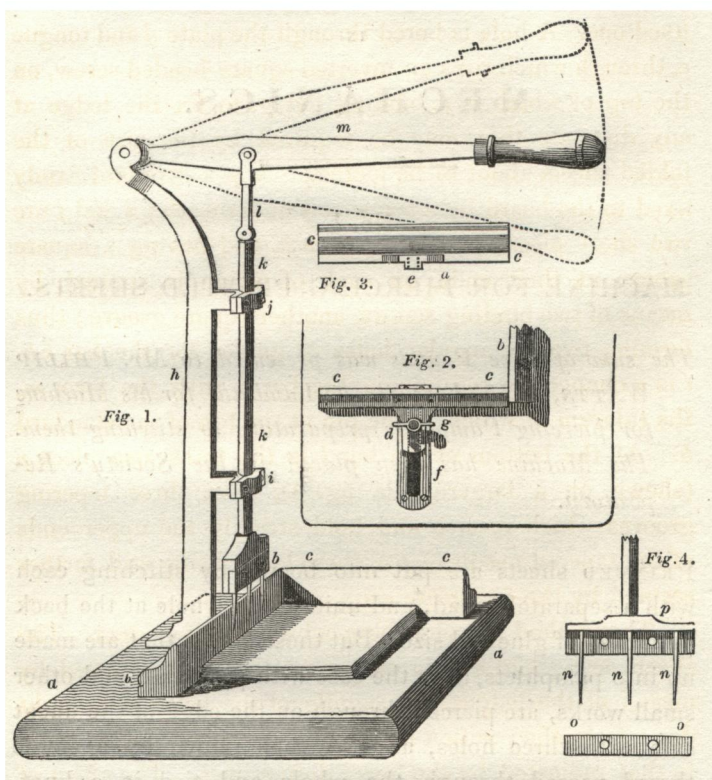
MACHINE FOR PIERCING PRINTED SHEETS.

The sum of Five Pounds was presented to Mr. PHILIP WATTS, of 55, Fore Street, Lambeth, for his Machine for piercing Pamphlets preparatory to stitching them. The Machine has been placed in the Society's Repository.

PRINTED sheets are put into boards by stitching each with a separate thread, and uniting the whole at the back by means of glue and size. But those sheets that are made up into pamphlets, as is the case with periodical and other small works, are pierced through on the edge of the uncut side with three holes, and are then united by a single thread passed through the whole and tied in a knot. The instrument used for piercing the sheets is a common awl, assisted, when necessary, by a mallet; and as this work is done by women, it often becomes a laborious and even painful operation. Likewise, when a press of business occurs, it is sometimes difficult to obtain a sufficient number of hands to rid the work.

Mr. Watts was applied to by a woman occupied in

pamphlet-stitching, to invent a machine which should diminish the labour and expedite the work ; and the result has been the instrument about to be described.



aa is a strong board, on which are raised the ledges *bb* and *cc*, being placed at right angles to each other. The former is fixed in its position by means of screws ; the latter is movable for a few inches, to enable a pamphlet of any usual size to be laid against *bb*, having the middle of its back directly under the three needles. The adjustable ledge *cc* has a plate *d*, figs. 2 and 3, screwed

to its under side. From the bottom of this piece a tongue, *e*, as long as the piece itself, projects downwards and traverses in the slit *f* (which it fits pretty accurately), and so keeps the movable ledge *cc* at right angles to the other fixed one. A hole is bored through the plate *d* and tongue *e*, through which rises an inverted square-headed screw, on the top of which is a binding nut *g*, to fix the ledge at any distance that may be required by the size of the folded sheets about to be pierced. *h* is a standard firmly fixed to the board by a screw-nut underneath; *i* and *j* are two short pieces projecting from *h*, and having a square groove at their ends, on each of which is applied, by means of two binding screws, another square groove; thus forming two rectangular holes or guides for the bar *kk*. *l* is a connecting-rod joining the bar *k* with the lever *m*, the fulcrum of which is the pin at the top of the standard *h*. At the bottom of the bar *k* is the transverse piece *p* (shewn on a larger scale fig. 4), with three tapering grooves which receive and hold steadily the upper ends of the tapered needles *nnn*, these latter being still farther secured by the face-plate *oo*.

The method of using the machine is self-evident. The sheets being laid evenly on one another, and adjusted by means of the ledges, the handle of the lever is brought down from the position marked by the upper dotted lines, to that indicated by the lower dotted lines. The effect of this action is to depress the bar *k*, and to force the needles through the sheets. The motion of the needles being vertical, there is little likelihood of their being broken: but if this should happen, it is only necessary to take off the face-plate, to remove the broken needle, and to substitute a perfect one in its place.

On inquiry, the committee heard of two other ma-

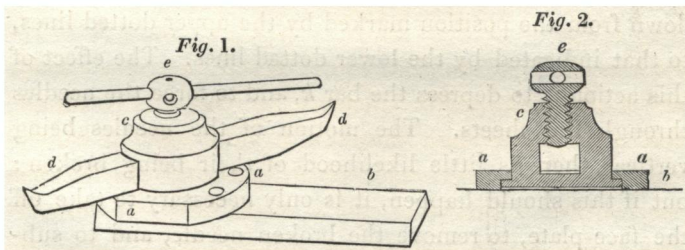
chines in London for the same purpose; but these appear scarcely to be known in the trade, except by the two bookbinders to whom they belong, and by whom they are used, and seem, in some respects, inferior to Mr. Watts's.

No. II.

IMPROVED BOX FOR A SLIDE REST.

The SILVER ISIS MEDAL was presented to Mr. PARSSON, of Great Guilford Street, for an improved Box for a Slide Rest to a Lathe for turning Iron; which has been placed in the Society's Repository.

THE essential novelty of Mr. Parsson's invention consists in the rotatory motion of adjustment that the box possesses, whereby the workman may choose the best position of the tool with reference to any particular kind of work, and may likewise work considerably beyond the length of the slide. It will be found very convenient in clearing the shoulders of castings from the sand which adheres to them, as well as in boring cylinders.



c is the holder, having a circular flanch at bottom, as shewn in section fig. 2, *aa* is a ring or collar hollowed out